



State of Utah

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DEPARTMENT OF TRANSPORTATION

JOHN R. NJORD, P.E.
Executive Director

CARLOS M. BRACERAS, P.E.
Deputy Director

June 3, 2009

TO ALL BIDDERS CONCERNED:

SUBJECT: S-0108(23)5
SR-108 From Syracuse Road Northerly
Addendum No. 2

To Whom It May Concern:

We are submitting the following changes to the subject project.

1. The "Table of Contents" has been revised. Special Provision 00515M "Contract Award and Execution" the date has changed. Special Provision 02066S "Geogrid" the date has changed.
1. Special Provision 00515M "Contract Award and Execution" has been revised. Add Article 1.3 paragraph B and Article 1.7 paragraph E. New Utah Code legal requirement for all Utah Contracts effective July 1, 2009.
2. Special Provision 02066S "Geogrid" has been revised.

Please consider these revisions before submitting your bid.

***ADDENDUM IS AVAILABLE AND MAY BE DOWNLOADED FROM THE UDOT WEBSITE AT
<http://www.udot.utah.gov/index.php?m=c&tid=317>

**RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED WHEN YOU SUBMIT YOUR BID. YOUR BID
WILL BE DECLARED NON-RESPONSE IF YOU DO NOT ACKNOWLEDGE THIS ADDENDUM.**

Sincerely,

Jamie Thompson For Randy Jefferies
Randy Jefferies
UDOT Project Manager

Sincerely,

Pete Negus
Pete Negus
Deputy Construction Engineer

Attach.

2008 - Standards

Table of Contents

- I. Statement of 2008 Standard Specifications and Standard Drawings for Road and Bridge Construction applicability
- II. List of Supplemental Drawings (December 3, 2008)
- III. Materials Minimum Sampling and Testing (December 3, 2008)
- IV. Notice to Contractors
- V. Bidding Schedule
- VI. Measurement and Payment
- VII. Standard Drawing Index (December 3, 2008)
- VIII. Equal Opportunity (State Projects)
- IX. Special Provisions and Supplemental Specifications (December 3, 2008)

	<u>Section No.</u>	<u>Title (Type) (Date)</u>
1.	00221S	Bidding Contract Time (Special Provision) (05/01/09)
2.	00250S	Prebid Conference (Department Special Provision) (05/01/09)
3.	00515M	Contract Award and Execution (Special Provision) (06/03/09)
4.	00555M	Prosecution and Progress (Special Provision) (05/01/09)
5.	00727M	Control of Work (Special Provision) (05/01/09)
6.	00727M	Control of Work (Supplemental Specification) (10/30/08)
7.	00728S	Utility Potholing (Special Provision) (05/05/09)
8.	00820M	Legal Relations and Responsibility to the Public (Special Provision) (04/28/09)
9.	01282M	Payment (Materials Special Provision) (02/09/09)
10.	01554M	Traffic Control (Supplemental Specification) (04/24/08)
11.	02066S	Geogrid (Special Provision) (06/03/09)
12.	02082M	Relocate Water Meter (Special Provision) (04/23/09)
13.	02083S	Relocate Fire Hydrant (Special Provision) (04/23/09)
14.	02377S	Asphalt Ditch (Special Provision) (05/05/09)
15.	02611S	Screw Gate and Frame (Special Provision) (04/09/09)
16.	02612S	Pipe to Pipe Connection (Special Provision) (04/13/09)
17.	02627S	Culinary Water Lines (Special Provision) (04/23/09)
18.	02742S	Project Specific Surfacing Requirements (Special Provision) (04/23/09)
19.	02765S	Pavement Marking Paint (Materials Special Provision) (01/06/09)
20.	02924S	Invasive Weed Control (Department Special Provision) (01/01/08)

June 3, 2009

SPECIAL PROVISION

S-0108(23)5

SECTION 00515M

CONTRACT AWARD AND EXECUTION

Add Article 1.3 paragraph B:

- B. Utah Administrative Code

Add Article 1.7 paragraph E:

- E. Comply with Utah Administrative Code 72-6-107.5, effective July 1, 2009.
 - 1. The Department will not enter into a contract with a Contractor (or subcontract to a contract) without demonstration of compliance regarding the offering of "Qualified Health Insurance Coverage" to their employees.
 - 2. Prior to issuing Notice to Proceed or approval to sublet work, the contractor must demonstrate compliance following the provisions of Administrative Rule R-916-5.
 - 3. A Contractor's inability to adequately demonstrate compliance may be grounds for determining a bid non-responsive or grounds for cancellation of award.

Delete Paragraph A of Article 1.6 PROPOSAL CONSIDERATION and replace with the following:

- A. This project uses a Price + Time bidding process. Price + Time bidding (1) provides for determination of the low Bidder to be based on the price of construction, plus the user costs associated with contract time; and (2) provides an incentive/disincentive to the Contractor for completion of project time-related milestones based on durations established by the Contractor at the time of bid.

The Department opens the Bid Proposals using the current version of EBS (electronic bid system) then compares them on the basis of the summation of the products of the quantities and unit bid prices. The low bid is determined by using a Price + Time (P+T) bidding method, as follows:

1. The bid will consist of a Price component and a Time component.
2. The Price component is the sum of the products of the quantities and unit bid prices for the pay items in the contract.
3. The time component is the sum of all of the time related bid items.
4. The bid amount, for purposes of bid comparisons to determine the low bidder, is determined by summing the Price component with the amount bid for time components, as shown in the following equation:

$$\text{Bid amount} = \text{Price} + \text{Time}$$

This summation is only used to determine the successful bidder. It is not used to determine the award amount nor final payment to the contractor when the project is completed.

5. The Department makes the results of the comparisons available to the public.
6. The unit bid prices govern if a discrepancy exists between unit bid prices and extensions.

June 3, 2009

SPECIAL PROVISION

S-0108(23)5

SECTION 02066S

GEOGRID

Add Section 02077:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Roadway and roadway embankment applications.
- B. Use Type 2 Geogrid only.

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES

- A. AASHTO Standard Specifications for Highway Bridges
- B. ASTM D 1388: Standard Test Method for Stiffness of Fabrics (Option A)
- C. ASTM D 4354: Standard Practice for Sampling of Geosynthetics for Testing
- D. ASTM D 4759: Standard Practice for Determining the Specification Conformance of Geosynthetics
- E. ASTM D 5818: Standard Practice for Exposure and Retrieval of Samples to Evaluate Installation Damage of Geosynthetics
- F. ASTM D 6213: Standard Practice for Tests to Evaluate the Chemical Resistance of Geogrid to Liquids
- G. ASTM D 6637: Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-rib Tensile Method
- H. Determining the Aperture Stability Modulus of a Geogrid, Dr. Thomas C. Kinney, P.E.
- I. Geosynthetics Materials Association for AASHTO – White Paper

- J. Geosynthetic Research Institute GG2: Standard Test Method for Geogrid Junction Strength
- K. U.S. Environmental Protection Agency (EPA) – EPA 9090: Compatibility Test for Wastes and Membrane Liners
- L. U.S. Army Corps of Engineers (U.S. COE): CW 02215 Determination of Percent Open Area

1.4 DEFINITIONS

- A. Aperture Stability Modulus (Torsional Rigidity or Torsional Stiffness) – Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9-inch by 9-inch specimen restrained at its perimeter. Values shown are MARVs.
- B. Base Reinforcement – Placement of a geogrid beneath or within the aggregate base course of a flexible pavement system to improve the stiffness of the system. The goal of this application may be to reduce the amount of aggregate base material required and reduce the initial cost, increase the life of the pavement and reduce life-cycle cost, or a combination of the two.
- C. Flexural Stiffness (Flexural Rigidity) – Resistance to bending force measured according to ASTM D 1388, using specimens two ribs wide with transverse ribs cut flush with exterior edges of longitudinal ribs and length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of the MD and XMD Flexural Stiffness values.
- D. Geogrid – A biaxial polymeric grid formed by a regular network of integrally connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth to function primarily as reinforcement.
- E. Junction Strength – Breaking tensile strength of junctions when tested in accordance with Geosynthetic Research Institute GG2 as modified by AASHTO Guide for Design of Pavement Structures using a single rib having the greater of three junctions or eight inches and tested at a strain rate of 10 percent per minute based on this gauge length. Values shown are minimum average roll values.
- F. Minimum Average Roll Value (MARV) – Value based on testing and determined in accordance with ASTM D 4759.

- G. Subgrade Improvement – Placement of a geogrid immediately over a soft subgrade soil in order to improve the bearing capacity and mitigate deformation of the subgrade soil. The goal of this application may be to reduce undercut requirements, improve construction efficiency, reduce the amount of aggregate subbase/base material required, provide a stiff working platform for pavement construction, or combination of these.
- H. Traffic Benefit Ratio (TBR) or Traffic Improvement Factor (TIF) – A ratio comparing the performance of a pavement cross-section with a geogrid-reinforced base course to a similar cross-section without geogrid reinforcement based on the number of cycles to failure, with failure defined as a selected depth of rut.
- I. Tensile Strength – Measured according to ASTM D 6637 at a strain rate of 10 percent per minute. Values shown are MARVs.
- J. Welded Strip Geogrid – A geogrid product formed by heat bonding (welding) discrete strips of polymer into a regular network.
- K. Woven Geogrid – A geogrid product formed by weaving discrete strips of polymer into a network.

1.5 SUBMITTALS

- A. Geogrid product sample approximately 4 inches by 7 inches or larger. Refer to ASTM D 4354.
- B. Geogrid product data sheet and certification from the Manufacturer that the geogrid product supplied meets the requirements of this Section, article 2.2.
- C. Manufacturer's installation instructions and general recommendations.
- D. Submit the following to the Resident Engineer (RE) at least 10 days prior to bid opening for alternate geogrid materials that do not meet the requirements of this Section, article 2.2. The RE will respond within 5 days with a written justification for allowing or disallowing the requested alternate Geogrid. The RE will consult with the Region Pavement Design Engineer to decide on and approve the materials.
 - 1. Full-scale laboratory and in-ground testing of pavement structures reinforced with the specific geogrid that quantifies the TBR or structural benefit of the product including full-scale independent research to substantiate the benefits. The benefit from the geogrid must meet or exceed the design geogrid.

2. A list of five comparable projects that are similar in terms of size and application are located in the United States and where the results of using the specific alternate geogrid material can be verified after a minimum of five year of service life.
3. A sample of the alternate geogrid material that meets requirements of this Section and certified specification sheets.
4. Recommended installation instructions.
5. Additional information as requested by the Engineer to fully evaluate the product.

1.6 DELIVERY STORAGE AND HANDLING

- A. Storage and Protection
 1. Prevent excessive mud, wet concrete, epoxy, or other deleterious materials from coming in contact with and affixing to the geogrid materials.
 2. Store at temperatures above minus 20 degrees F (-29 degrees C).
 3. Lay flat or stand rolled materials on end.
 4. Do not expose geogrid materials to sunlight for a period longer than recommended by the manufacturer.

1.7 QUALITY ASSURANCE

- A. Pre-Construction Conference – Notify all members of the project team of the field installation training requirement.
- B. Installation Training Requirements – Arrange a meeting at the site between the product representative and the Engineer for the initial installation of the Geogrid. Notify the Owner, Engineer, and product representative at least five days in advance of the installation. A representative of the geogrid supplier must be available on an “as needed” basis during construction.
- C. Quality Control Testing – Provide quality control test results for strength, modulus, and aperture size on samples cut from rolls delivered to the job site according to Table 1. Sample a minimum of one sample per every 5,000 square yards or fraction thereof installed on the project. This criteria is not applicable to small projects less than 1,000 square yards.

1.8 ACCEPTANCE

- A. Department rejects geogrid at installation if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transport, handling or storage.

PART 2 PRODUCTS

2.1 GEOGRID – GENERAL

- A. Synthetic fiber net at least 95 - percent by weight of polypropylene, polyethylene, or polyester.
- B. Resistant to chemical attack, rot, and mildew.
- C. No tears or defects that will adversely alter properties of product.

2.2 ROADWAY AGGREGATE GEOGRID

- A. Geogrids are a regular network of integrally connected polymer tensile elements constructed with aperture geometry sufficient to permit significant mechanical interlock with the surrounding soil or rock. Geogrids must also be dimensionally stable and able to retain their geometry under manufacture, transport and installation.
- B. Type 2 Geogrid has the following properties:

Table 1

Geogrid Properties				
Types of Geogrid	Test Method	Units	Type 2	
			Machine Direction MD Minimum	Perpendicular to Machine Direction CMD Minimum
Minimum Rib Thickness	Nominal Dimensions	inch	0.05	0.05
Nominal Aperture Size	I.D. Callipered	inch	Range of 1.0 – 2.0	Range of 1.3 – 2.0
Flexural Stiffness	ASTM D 1388**	mg-cm	750,000	NA
Aperture Stability Modulus at 20 cm-kg	Kinney -01 ****		0.65 m-N/deg	NA
Resistance to Long Term Degradation	EPA 9090 Immersion Testing		100%	100%
Resistance to Chemical Degradation	ASTM D 6213		90%	90%
Open Area	CW 02215		70%	70%
Tensile Strength at 2% Strain	ASTM D 6637*	lb/ft	410	620
Tensile Strength at 5% Strain	ASTM D 6637*	lb/ft	700	1,200
Ultimate Tensile Strength	ASTM D 6637*	lb/ft	1,200	2,096

Junction Strength	GRI-GG2***	lb/ft	1200	
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- * Resistance to elongation when initially subjected to load measured via ASTM D 6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement.
- ** Resistance to bending force measured via ASTM D 1388, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of machine-and cross-machine-direction Flexural Stiffness values.
- *** Geosynthetics Materials Association for AASHTO recommends a minimum of 8 pounds of junction strength per junction.
- **** Or equivalent test method approved by the Engineer.

- C. Values shown are minimum average roll values (MARV) determined in accordance with ASTM D 4759 unless indicated otherwise.
- D. Acceptance Requirements – The actual minimum average roll values furnished by the manufacturer based on representative test results from the manufacturing plant which produced the geogrid, and must meet or exceed each of the specified minimum values. All geogrids must be clearly labeled as being part of the same production run certified as meeting all applicable requirements.

PART 3 EXECUTION

3.1 GRANULAR BASE REINFORCEMENT

- A. Place geogrid at the proper elevation and alignment as shown on the construction drawings.
1. Provide minimum overlap per manufacture's recommendations.
 2. Install geogrid according to the guidelines provided by the manufacturer or as directed by the Engineer.
 - a. Geogrid may be temporarily secured in place with ties, staples, pins, sand bags, or backfill as required by fill properties, fill placement, or weather conditions or as directed by the Engineer.
- B. Place, spread, and compact granular fill material to minimize the development of wrinkles or movement in the geogrid.
- C. A minimum loose fill thickness of six inches is required prior to operation of tracked vehicles over the geogrid.
1. Keep tracked vehicle turns to a minimum to prevent tracks from displacing the fill and damaging the geogrid.
 2. Pass rubber-tired equipment over the geogrid reinforcement at slow speeds, less than 10 mph, when integrally-formed geogrids are used if subgrade conditions permit.

3. Use rubber-tired equipment when woven or welded strip geogrids are used and do not allow the equipment directly on the geogrid.
 4. Avoid sudden braking and sharp turning movements.
- D. Replace any roll of geogrid damaged before, during, or after installation at no additional cost to the owner.
1. Proper replacement consists of replacing the affected area and overlapping the geogrid one foot on all sides adjacent to the damaged area.
 2. Follow ASTM D 5818 for exposure and retrieval damages done during installation of evaluation samples.

3.2 PROTECTION

- A. At least 6 inches of fill cover is required if tracked vehicles are operated over geogrid.

END OF SECTION